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EXAMINER	
TRUONG, CAM Y T	
ART UNIT	**PAPER NUMBER**
2172	

DATE MAILED: 09/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No.	Applicant(s)
	09/493,673	CHAN, WILSON WAI SHUN
	Examiner	**Art Unit**
	Cam Y T Truong	2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 4, 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Claims 1-21 are pending in this Office Action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dasgupta (USP 5612865).

As to claims 1 and 8, Dasgupta teaches the claimed limitations:

"establishing a first master node as master for one or more resources in response to a hash value range being mapped to said first master node" as shown in fig. 3, six hash buckets are associated with resources initially assigned as follows to three nodes, numbered 1 through 3, within a three-node cluster: buckets 1 through 2 are assigned to node 3. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node. This information shows that the other node is established as a master node. The other node can be Node 3 (col. 10, lines 35-50; col. 8, lines 60-65) "wherein the hash value range is associated with said one or more resources by a hash function" as (col. 8, lines 25, lines 25-27; col. 10, lines 36-42);

"transferring responsibility for mastering said one or more resources from the first master node to a second master node during a transfer time interval" as the hashing

function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks. Once a new cluster is formed, the hashing function is used to evaluate the hash vector, which defines the mastership of DLM resource. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node and vice versa. This node is represented as first master node. The other node is represented as the second master node. The above information implies that the first master node moves or relocates its resources/locks to the second master node during the time interval (col. 8, lines 20-60).

Dasgupta does not clearly teach the claimed limitations "processing lock requests received at a receiving node of the first master node and the second master node by the receiving node during the transfer time interval". However, Dasgupta teaches that node 101-1 includes local shared memory segment, which stores process information, lock structures, request/ownership queues, and information about local processes that request or own remote locks on processing nodes 101-1 through 101-4. Remote lock request received by processing 101-1 via datagrams generated by one or more of the other processing nodes 101-2 through 101-4. Within each processing node 101-1 through 101-4, many remote lock requests can be processed in parallel. A more optimal schema would require the DLM shared library to have the capability of directly sending the lock directly to the master node over a network. Each resource and its corresponding locks are

mastered on a specific node in the cluster. The hashing function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks. The above information shows that the lock requests received by nodes 101-1 are processed during time interval. Node 101-1 is a master node of nodes 101-2 through 101-4 within clustered system. Node 101-1 is represented as a receiving node. Node 101-2 is represented as first master node. Node101-3 is represented as second master node (col. 4, lines 65-67; col. 5, lines 5-80; col. 8, lines 10-50).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Dasgupta's teaching of processing remote lock requests received at node 101-1 in clustered system and requiring a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks in order to prevent deadlock or many users access resources at the same time, to increase throughput of concurrently executing processes to selectively lockable data resources.

4. Claims 2, 4, 6, 9, 11, 13, 15, 17-19 and 21, rejected under 35 U.S.C. 103(a) as being unpatentable over Dasgupta (USP 5612865) in view of Shrivastava et al (or hereinafter "Shrivastava") (USP 6449734).

As to claims 2 and 9, Dasgupta teaches the claimed limitation "re-mapping the hash value range to the second master node at the first master node" as (col. 10, lines 35-50);

"sending initial lock information resident on the first master node at a start of the transfer time interval to the second master node" as (col. 8, lines 1-50).

Dasgupta does not teach the claimed limitation "receiving acknowledgments at the first master node from other active nodes in the cluster; said acknowledgements indicating that said other active nodes have been informed that said second master node is assuming responsibility for mastering said one or more resources. However, Dasgupta teaches redistribution of the management of locks to other functional nodes of the new clusters (col. 3, lines 45-50).

Shrivastava teaches the claimed limitations:

"receiving acknowledgments at the first master node from other active nodes in the cluster" as systems e.g., 601-60n in the cluster 58 have the same view of cluster membership, and in the event that one system detects a communication failure with another system, the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. A master node is the node that owns a resource or group. This information shows that each node has received other active nodes in cluster at a master node. The detecting system can be the node 604, which is represented as the first master node (col. 5, lines 45-51);

"said acknowledgements indicating that said other active nodes have been informed that said second master node is assuming responsibility for mastering said one or more resources" as system e.g., 601-60n in the cluster 58 have the same view of cluster membership, and in the event that one system detects a communication failure with another system, the detecting system broadcasts a message to the cluster causing

other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. After the master node determined to be the node 603, the request node 602 forwards the transaction request to the master node 603. The master node 603 forwards forwards the transaction request to the GLUP locker node 601. This information shows that the system has broadcasted a message indicating that node 603 is a master node, to node 601 and 602. Thus, each node knows the master node 603. The node 603 is represented as the second master node (col. 5, lines 45-51; col. 8, lines 60-65; col. 9, lines 3-5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Shrivastava's teaching of the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. Thus, the request node 602 forwards the transaction request to the master node 603 to Dasgupta's system in order to maintain processing data structures in logical and coherent manner and allow the distribution of processes to be managed in a cross platform environment consistently.

As to claims 4 and 11, Dasgupta teaches the claimed limitations:

"receiving initial lock information at the second master node" as each resource and its corresponding locks is mastered on a specific node in cluster (col. 8, lines 9-11), "said initial lock information resident on the first master node at a start of the transfer time interval" as relocating locks in interval time, sending resources/locks from one node to other node when one node is fully quiesced with respect to another node. This

information implies that locks residents on one node at starts of relocate or send time interval (col. 8, lines 45-60).

Dasgupta fails to teach the claimed limitation "sending a broadcast message to all other nodes in the cluster that the second master node is a new master node for resources associated with the hash value range". However, Dasgupta teaches redistributing of the master ship of system resources among active processing nodes within a clustered system. As shown in fig. 3, six hash buckets and their associated resources initially assigned as follows to three nodes such as bucket 1 through 2 are assigned to node 3 (col. 10, lines 30-45). Shrivastava teaches that the detecting system broadcasts a message to the cluster cuasing other members to verify their view of the current cluster membership. The locker node 601 gives permission for sender 602 to broadcast its update to the other nodes in the system. If the sender node 602 fails while an update is in progress, the clocker node 601 recognizes the failure and re-sends the update to the other nodes in the system. The update is uniquely tagged so that nodes which have already received the update simply ignore the re-sent update. The locker node 601 is a re-sender node which is represented as a second master node. The above information shows that the receiving nodes know new sender node that sends them new update information (col. 5, lines 27-35; col. 6, lines 52-65).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Shrivastava's teaching of the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership, and sender node 602 broadcasts its update to the other nodes

in the system to Dasgupta's system in order to maintain processing data structures in logical and coherent manner.

As to claims 6 and 13, Dasgupta teaches the claimed limitation "receiving updated lock information from the first master node at the second master node" as the hashing function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks. Once a new cluster is formed, the hashing function is used to evaluate the hash vector, which defines the mastership of DLM resource. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node and vice versa. The system submits requests and modify locks within the lock database (col. 8, lines 20-60; col. 7, lines 55-60). When the system distributes locks to nodes in the clustered system, the modified locks can be distributed in master node. Thus, the system would transferred locks from one node to another node in interval time, "as wherein the transfer time interval ends at an update time of said receiving updated lock information." as modifying lock in a database and relocating locks in interval time, sending resources/locks from one node to other node when one node is fully quiesced with respect to another node. This information implies that receiving at other node occurs in interval time when one node is fully quiesced with another node and one node transfers its locks to other node. These locks stored in nodes are updated locks from a database. Thus, it is

obvious that the transfer time interval ends at an update time of sending updated lock information (col. 7, lines 55-60; col. 8, lines 45-60).

As to claim 15, Dasgupta teaches the claimed limitations:

" re-mapping a hash value range initially assigned to the first master node to the second master node" as shown in fig. 3, six hash buckets are associated with resources initially assigned as follows to three nodes, numbered 1 through 3, within a three-node cluster: buckets 1 through 2 are assigned to node 3. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node (col. 10, lines 35-50; col. 8, lines 60-65), "wherein the hash value range is associated with one or more of the shared resources by a hash function" as (col. 8, lines 25, lines 25-27; col. 10, lines 36-42).

"sending initial lock information resident on the first master node at a start of the transfer time interval to the second master node" as the hashing function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks. Once a new cluster is formed, the hashing function is used to evaluate the hash vector, which defines the mastership of DLM resource. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node and vice versa. This node is represented as first master node. The other node is represented as the second

master node. Since time interval may include start time and end time. Thus, moving or relocating resources/locks from the first master nodes moves to the second master node can be at the start time of time interval (col. 8, lines 20-60).

Dasgupta fails to teach the claimed limitations:

"receiving acknowledgments at the first master node from other active nodes in the cluster; said acknowledgements indicating that said other active nodes have been informed that said second master node is assuming responsibility for mastering said one or more resources".

However, Shrivastava teaches the claimed limitations:

"receiving acknowledgments at the first master node from other active nodes in the cluster" as systems e.g., 601-60n in the cluster 58 have the same view of cluster membership, and in the event that one system detects a communication failure with another system, the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. A master node is the node that owns a resource or group. This information shows that each node has to receive other active nodes in cluster at a master node. The detecting system can be the node 604, which is represented as the first master node (col. 5, lines 45-51);

"said acknowledgements indicating that said other active nodes have been informed that said second master node is assuming responsibility for mastering said one or more resources" as system e.g., 601-60n in the cluster 58 have the same view of cluster membership, and in the event that one system detects a communication failure with another system, the detecting system broadcasts a message to the cluster causing

other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. After the master node determined to be the node 603, the request node 602 forwards the transaction request to the master node 603. The master node 603 forwards forwards the transaction request to the GLUP locker node 601. This information shows that nodes 601 and 602 know the node 603, which is a master node. The node 603 is represented as the second master node (col. 5, lines 45-51; col. 8, lines 60-65; col. 9, lines 3-5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Shrivastava's teaching of the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. Thus, the request node 602 forwards the transaction request to the master node 603 to Dasgupta's system in order to maintain processing data structures in logical and coherent manner and allow the distribution of processes to be managed in a cross platform environment consistently.

As to claim 17, Dasgupta fails to teach the claimed limitation "processing lock requests received during the transfer time interval until receiving acknowledgements from all active nodes in the cluster". However, Dasgupta teaches that as the hashing function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time

interval required to relocate resources and locks. Once a new cluster is formed, the hashing function is used to evaluate the hash vector, which defines the mastership of DLM resource. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node and vice versa ((col. 7, lines 55-60; col. 8, lines 45-60). Shrivastava teaches that system e.g., 601-60n in the cluster 58 have the same view of cluster membership, and in the event that one system detects a communication failure with another system, the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. Each node knows which nodes own which resources and groups (col. 5, lines 45-51).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Shrivastava's teaching of the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups to Dasgupta's system in order to maintain performing requests from nodes consistently.

As to claim 18, Dasgupta teaches the claimed limitations:

"receiving initial lock information resident on the first master node at a start of the transfer time interval" as relocating locks in interval time, sending resources/locks from one node to other node when one node is fully quiesced with respect to another node.

This information implies that locks residents on one node at starts of relocate or send time interval (col. 8, lines 45-60).

"re-mapping a hash value range initially assigned to the first master node to the second master node, wherein the hash value range is associated with one or more of the shared resources by a hash function" as (col. 8, lines 10-60).

Dasgupta fails to teach the claimed limitation "sending a broadcast message to all other nodes in the cluster that the second master node is a new master node for resources associated with the hash value range". However, Dasgupta teaches redistributing of the master ship of system resources among active processing nodes within a clustered system. As shown in fig. 3, six hash buckets and their associated resources initially assigned as follows to three nodes such as bucket 1 through 2 are assigned to node 3 (col. 10, lines 30-45). Shrivastava teaches system e.g., 601-60n in the cluster 58 have the same view of cluster membership, and in the event that one system detects a communication failure with another system, the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. After the master node determined to be the node 603, the request node 602 forwards the transaction request to the master node 603. The master node 603 forwards forwards the transaction request to the GLUP locker node 601. This information shows that the system has broadcasted a message indicating that node 603 is a master node, to node 601 and 602. Thus, each node knows the master node 603. The node 603 is represented as the second master node (col. 5, lines 45-51; col. 8, lines 60-65; col. 9, lines 3-5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Shrivastava's teaching of the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. Thus, the request node 602 forwards the transaction request to the master node 603 to Dasgupta's system in order to maintain processing data structures in logical manner and allow the distribution of processes to be managed in a cross platform environment consistently.

As to claim 19, Dasgupta teaches the claimed limitation "said instructions further causing the one or more processors to perform receiving updated lock information from the first master node" as hashing function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks. Once a new cluster is formed, the hashing function is used to evaluate the hash vector, which defines the mastership of DLM resource. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node and vice versa. The system submits requests and modify locks within the lock database (col. 8, lines 20-60; col. 7, lines 55-60). When the system distributes locks to nodes in the clustered system, the modified locks can be distributed in master node. Thus, the system would transferred locks from one node to another node in

interval time, "wherein the transfer time interval ends at an update time of said receiving updated lock information" as modifying lock in a database and relocating locks in interval time, sending resources/locks from one node to other node when one node is fully quiesced with respect to another node. This information implies that receiving at other node occurs in interval time when one node is fully quiesced with another node and one node transfers its locks to other node. These locks stored in nodes are updated locks from a database. Thus, the time interval ends at an update time of sending updated lock information (col. 7, lines 55-60; col. 8, lines 45-60).

As to claim 21, Dasgupta teaches the claimed limitations:

"wherein the hash value range is associated with one or more of the shared resources by a hash function" as (col. 10, lines 35-50; col. 8, lines 25-30);

"re-mapping the hash value range to the second master node" as if a particular node is fully quiesced with respect to another node, it will send to it only those resources/locks that were mastered from this node to the other node. Resources are associated with hash buckets from 1 through 6. Thus, when this node transfers resources to the other node, the hash buckets from 1 through 6 is re-mapped to the other node too. This other node is represented as the second master node (col. 8, lines 55-60; col. 10, lines 35-40).

Dasgupta fails to teach the claimed limitations "receiving a broadcast message indicating that the second master node is a new master node for resources associated with a hash value range; sending an acknowledgment to the first master node in response to the broadcast message, said acknowledgement indicating that said third node

has been informed that said second master node is assuming responsibility for mastering said one or more resources; and after said sending an acknowledgment, sending subsequent lock requests for the one or more of the shared resources to the second master node". However, Dasgupta teaches that as if a particular node is fully quiesced with respect to another node, it will send to it only those resources/locks that were mastered from this node to the other node. Resources are associated with hash buckets from 1 through 6. Thus, when this node transfers resources to the other node, the hash buckets from 1 through 6 is re-mapped to the other node too (col. 8, lines 55-60; col. 10, lines 35-40). Shrivastava teaches systems e.g., 601-60n in the cluster 58 have the same view of cluster membership, and in the event that one system detects a communication failure with another system, the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. After the master node determined to be the node 603, the request node 602 forwards the transaction request to the master node 603. The master node 603 forwards forwards the transaction request to the GLUP locker node 601. This information shows that nodes 601 and 602 know the node 603, which is a master node. The node 603 is represented as the second master node (col. 5, lines 45-51; col. 8, lines 60-65; col. 9, lines 3-5).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Shrivastava's teaching of the detecting system broadcasts a message to the cluster causing other members to verify their view of the current cluster membership. Each node knows which nodes own which resources and groups. Thus, the request node 602 forwards the transaction request to the master node

603 to Dasgupta's system in order to maintain processing data structures in logical and coherent manner and allow the distribution of processes to be managed in a cross platform environment consistently.

5. Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dasgupta (USP 5612865) in view of Wolff (UPS 6185601).

As to claims 3 and 10, Dasgupta teaches the claimed limitation "sending updated lock information resident on the first master node at said full acknowledgment time to the second master node" as the hashing function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks. Once a new cluster is formed, the hashing function is used to evaluate the hash vector, which defines the mastership of DLM resource. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node and vice versa. The system submits requests and modify locks within the lock database (col. 8, lines 20-60; col. 7, lines 55-60). When the system distributes locks to nodes in the clustered system, the modified locks can be distributed in master node. Thus, the system transfers locks from one node to another node in interval time, "wherein the transfer time interval ends at an update time of said sending updated lock information" as modifying lock in a database and relocating locks in interval time, sending resources/locks from one node to other node when one node is fully quiesced

with respect to another node. This information implies that sending locks from one node to other node occurs in interval time when one node is fully quiesced with another node. These locks stored in nodes are updated locks from a database. Thus, it is obvious that the transfer time interval ends at an update time of sending updated lock information (col. 7, lines 55-60; col. 8, lines 45-60).

Dasgupta fails to teach the claimed limitation "in response to receiving acknowledgements from all active nodes in the cluster by a full acknowledgement time". However, Wolff teaches at time t=0, normal client 100A is shown accessing memory resource 118 via path 70 through over loaded server 104. At the same time, aware client 102a is shown accessing memory resource 118 via path 70 through over loaded server 104. At the same time, aware client 102 A is shown accessing memory resource 118, via path 74, through overloaded server 104A. At time T-1, process 102 P1, implemented on aware client 102A, detects the overload condition of server 104A, and access memory resource 118 via an alternate path 76 through server 106A. The detection of an overload condition on servers 104A-106A can be made by processes 104PA and 106PA running on the servers. This information shows that the client node receives acknowledgements from all active server nodes in the clustered system (col. 5, lines 25-41).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Wolff's teaching of detecting the overload condition of servers at particular time to Dasgupta's system in order to distribute requests load among nodes on a network without conflicting.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dasgupta (USP 5612865) in view of Shrivastava and further in view of Wolff (UPS 6185601).

As to claim 16, Dasgupta teaches the claimed limitations:

"sending updated lock information resident on the first master node at said full acknowledgment time to the second master node" as the hashing function has the following specific property for any current cluster membership, the hashing function guarantees that the mastership of resources will be evenly distributed amongst the members. The movement of resources occur in a way that preserves. This property requires a minimal movement of resources, thus helping reduce the time interval required to relocate resources and locks. Once a new cluster is formed, the hashing function is used to evaluate the hash vector, which defines the mastership of DLM resource. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node and vice versa. This node is represented as first master node. The other node is represented as the second master node. Thus, the system would transferred locks from one node to another node in interval time (col. 7, lines 55-60; col. 8, lines 45-60), "wherein the transfer time interval ends at an update time of said sending updated lock information" as modifying lock in a database and relocating locks in interval time, sending resources/locks from one node to other node when one node is fully quiesced with respect to another node. This information implies that sending locks from one node to other node occurs in interval time when one node is fully quiesced with another node. These locks stored in nodes are updated locks from a database. Thus, it is obvious that the transfer time interval ends at

an update time of sending updated lock information (col. 7, lines 55-60; col. 8, lines 45-60).

Dasgupta fails to teach the claimed limitation "in response to receiving acknowledgements from all active nodes in the cluster by a full acknowledgement time". However, Wolff teaches at time t=0, normal client 100A is shown accessing memory resource 118 via path 70 through over loaded server 104. At the same time, aware client 102a is shown accessing memory resource 118 via path 70 through over loaded server 104. At the same time, aware client 102 A is shown accessing memory resource 118, via path 74, through overloaded server 104A. At time T-1, process 102 P1, implemented on aware client 102A, detects the overload condition of server 104A, and access memory resource 118 via an alternate path 76 through server 106A. The detection of an overload condition on servers 104A-106A can be made by processes 104PA and 106PA running on the servers. This information shows that the client node receives acknowledgements from all active server nodes in the clustered system (col. 5, lines 25-41).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Wolff's teaching of detecting the overload condition of servers at particular time to Dasgupta's system in order to distribute requests load among nodes on a network without conflicting.

7. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dasgupta (USP 5612865) in view of Freitas et al (or hereinafter "Freitas") (USP 6401110).

As to claims 7 and 14, Dasgupta discloses the claimed limitation subject matter in claim 1, except the claimed limitation " lock requests include a sequence number; and said method further comprises deleting stale requests among the updated lock information received at the second master node, the stale requests indicated by sequence numbers earlier than sequence numbers in lock requests already processed on the second master node". However, Dasgupta teaches that generating lock requests on a node and updating locks on a database. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node. The system submits requests and modify locks within the lock database (col. 8, lines 20-60; col. 7, lines 55-60; col. 4, lines 25-30). Freitas teaches that the sequence 600 an adapter performs in response to stimuli in the form of a local lock request input arriving at the head of the queue for a particular address range. This information shows that each received request lock is put in a queue associated with address range (col. 11, lines 40-45). The system deletes the lock request LQR, X, Y from the current adapter's queue (col. 13, lines 55-60).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Freitas's teaching of putting each received request lock in a queue for a particular address range and deleting the lock request LQR, X, Y from the current adapter's queue in order to avoid traffic during processing multiple lock requests and save memory space.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dasgupta (USP 5612865) in view of Shrivastava et al (or hereinafter "Shrivastava") (USP 6449734) and further in view of Freitas et al (or hereinafter "Freitas") (USP 6401110).

As to claim 20, Dasgupta discloses the claimed limitation subject matter in claim 18, except the claimed limitation "lock requests include a sequence number; and said instructions further cause the one or more processors to perform deleting stale requests among the updated lock information received at the second master node, the stale requests indicated by sequence numbers earlier than sequence numbers in lock requests already processed on the second master node". However, Dasgupta teaches that generating lock requests on a node and updating locks on a database. If a particular node is fully quiesced with respect to another node, it will send to it only resources/locks that were remastered from this node to the other node. The system submits requests and modify locks within the lock database (col. 8, lines 20-60; col. 7, lines 55-60; col. 4, lines 25-30). Freitas teaches that the sequence 600 an adapter performs in response to stimuli in the form of a local lock request input arriving at the head of the queue for a particular address range. This information shows that each received request lock is put in a queue associated with address range (col. 11, lines 40-45). The system deletes the lock request LQR, X, Y from the current adapter's queue (col. 13, lines 55-60).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Freitas's teaching of putting each received request lock in a queue for a particular address range and deleting the lock request LQR, X, Y from the current adapter's queue in order to avoid traffic during processing multiple lock requests and save memory space.

Allowable Subject Matter

9. Claims 5 and 12 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 5 and 12, none of the available prior art of record teaches or fairly suggest receiving a broadcast message…the second master node". Redistributing nodes is well known in the art as taught by Dasgupta . However, prior art such as Dasgupta does not teach "receiving a broadcast message …..the second master node" in the specific combination as recited in claims 5 and 12.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Moiin et al (USP 5999712).

Contact Information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cam-Y Truong whose telephone number is (703-605-1169). The examiner can normally be reached on Mon-Fri from 8:00AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu, can be reached on (703-305-4393). The fax phone numbers for the organization where this application or proceeding is assigned is (703)-746-7239 (formal communications intended for entry), or: (703)-746-7240 (informal communication labeled PROPOSED or DRAFT).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703-305-3900).

Cam-Y Truong

8/20/03

KIM VU
SUPERVISORY PATENT EXAMINER
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